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EXAMINER

HM22/0609

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ART UNIT

PAPER NUMBER

1632

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

FILE

Office Action SummaryApplication No.
08/931,219Applicant(s)
Falo et al.Examiner
Jill D. MartinGroup Art Unit
1632☒ Responsive to communication(s) filed on Feb 26, 1999.☒ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1-3, 5-17, 19-32, 34-47, 49-61, and 63-71 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1-3, 5-17, 19-32, 34-47, 49-61, and 63-71 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.☐ received in Application No. (Series Code/Serial Number) _____.☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☐ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Applicants' Amendment filed February 26, 1999, Paper No. 22, has been entered. Claims 1, 15, 29, 44, and 59 have been amended, and claims 68-71 have been added. Claims 1-3, 5-17, 19-32, 34-47, 49-61 and 63-71 are pending and under current examination.

Priority

It is maintained that the application lacks the necessary reference to the prior application. See page 2 of the prior Office action mailed September 24, 1998, Paper No. 19. It appears that Applicants have attempted to request an amendment regarding the continuity data in the Preliminary Amendment, filed May 9, 1998, Paper No. 18, however this amendment has not been entered because Applicants failed to request where such Amendment should be inserted in the specification. Also, note that the current status (now abandoned, now US Patent No.) of the parent nonprovisional application should be included in the amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The prior rejection of claims 1-3, 5-17, 19-32, 34-47, 49-61, and 63-71 under 35 U.S.C. §112, first paragraph, is maintained only as discussed in the subsequent paragraphs. Applicants' arguments are partially persuasive.

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However, Applicants evidence does not enable all routes of administration nor is the claimed invention (with the exemption of new claim 71) limited to generating a CTL immune response. Applicants evidence clearly demonstrates that gene-gun/particle bombardment administration into skin where dendritic cells are prevalent, results in CTL-mediated immune responses to tumor or virus. As such, Applicants' claims should specifically be limited to gene-gun/particle bombardment, or the biolistic approach, into the skin because Applicants' specification fails to teach or provide guidance to the skilled artisan for preparing vectors for APC cell-targeting by any other route of administration, *e.g.*, intravascular or intramuscular. See page 6 of the Office action mailed March 18, 1997, Paper No. 12. Also, note that claims 1, 29, 44, and 59 are not limited to particle bombardment, gene gun, or the biolistic approach because a particulate polynucleotide may be directly injected *i.v.*, or *i.m.*, by needle, for example. Furthermore, the claimed invention is only limited to presentation which elicits an anti-tumor or anti-viral immune response that destroys neoplastic or virally infected cells. However, MHC class I is not so limited to CTL-mediated responses; antigen processing and presentation via MHC class I can initiate a variety of immune reactions which would also encompass the generation of antibodies. Contrary to applicants arguments, antibodies are, in some cases, involved in inducing the killing of virally-infected cells. As such, Applicants' claims should specifically be limited to the specific MHC class I effect, *i.e.*, CTL killing or CTL immune responses.

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Claim Rejections - 35 USC § 112

Applicants' limitation "capable of generating an immune response" necessitated the new ground(s) of rejection as follows:

Claims 1-3, 5-17, 19-32, 34-47, and 49-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 15, 29, 44, and 59, the limitation "capable of" renders the claim indefinite because the capacity of a subject to perform some function is merely a latent characteristic of said subject and said language carries no patentable weight. See MPEP §2173.05(b), (d) and (g). It is suggested that Applicant use claim language which clearly indicates that the mammalian host is fully immunocompetent, *i.e.*, has a fully functional immune system intact. Claims 2, 3, 5-14, 16, 17, 19-28, 30-32, 34-43, 45-47, 49-58, 60, 61, and 63-67 depend from claims 1, 15, 29, 44, and 59.

Claim Rejections - 35 USC § 102

Applicants' addition to the claims necessitated the new ground(s) of rejection as follows:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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The prior rejection of claims 1, 15, 29, and 68-71 under 35 U.S.C. §102(b) as being anticipated by either Tang et al. or Barry et al. is maintained for the reasons of record.

Applicants argue that both Tang et al. and Barry et al. teach only antibody responses which are triggered by a different mechanism from that in which a CTL response is elicited. Applicants argue that antibody responses are generally not effective against tumor cells or virally infected cells such that Tang et al. and Barry et al. teach a different result. Applicants further argue that claim 29 is specifically directed to use of direct injection, and not a biolistic device and neither of the references teach direct injection. Applicants' arguments have been carefully considered, however, are not persuasive.

It is maintained that both Tang et al. and Barry et al. teach methods of genetic immunization comprising identical steps to that of the claimed invention; i.e., genetic inoculation into skin by the biolistic system. As such, any APC-effect such as an immune response is inherent within the method of genetic vaccination even though not specifically outlined by the references. The claimed methods are not limited to any particular antigen, nor do they include any additional steps which would render an immune response different from that of Tang et al. or Barry et al. Antigen processing and presentation via MHC class I can initiate a variety of immune reactions which would also encompass the generation of antibodies. Furthermore, with regard to claim 29, direct injection is clearly taught by Tang et al. and Barry et al. since the biolistic system requires that DNA be directly injected into skin.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The prior rejection of claims 1, 15, 29, and 68-71 under 35 U.S.C. 102(b) as being anticipated by Hui et al. is maintained for the reasons of record.

Applicants argue that Hui et al. do not appear to teach delivery of particulate polynucleotides to APCs. Applicants argue that Hui report only an allo-antigenic response, and use an artificial transplantation rejection antigen of questionable relevance to tumor or viral immunity. Applicants' arguments have been carefully considered, however, are not persuasive.

Hui et al. clearly teach "the generation of a very efficient secondary CTL response against H-2Kb molecules following genetic immunization of AKR/J(H-2k) mouse spleens with H-2Kb DNA-coated micro-projectiles by a hand-held version of the biolistic system." See sentence bridging pages 147-148. Note that the claimed invention is not directed to a specific type of CTL response nor is it directed to a specific antigen. As such, Hui et al. clearly meet the limitations of the claims.

Claim Rejections - 35 USC § 103

Applicants' amendments and/or addition to the claims necessitated the new ground(s) of rejection as follows:

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The prior rejection of claims 1-3, 5-17, 19-32, 34-47, 49-61 and 63-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiner et al. taken with either Tang et al. or Barry et al.

Applicants argue that a one sentence speculation as to a manner in which efficiency may be increased does not render obvious the present invention. Applicants argue that Tang et al. and Barry et al. do not cure the deficiencies of the primary reference since they teach elicitation of an antibody response, not a CTL response. Applicants' arguments have been carefully considered, however, are not persuasive.

Contrary to Applicants' arguments, Weiner et al. clearly teach methods of genetic immunization using target antigens of interest requiring transfection of APCs. In fact, Weiner et al. clearly teach and discuss APC processing and presentation of the target protein which in turn stimulates CTL responses. Furthermore, Weiner et al. clearly provide sufficient motivation for the ordinary artisan to apply genetic vaccination to particle bombardment since they propose an increase of efficiency. See column 32, lines 55-57. As such, these methods utilizing particle bombardment were taught in the art by Tang et al. and Barry et al.

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Accordingly, it would have been obvious for one of ordinary skill in the art to modify the method of Weiner et al. by employing particle bombardment rather than injection of naked DNA with a reasonable expectation of success.

Note that obviousness does not require absolute predictability of success; for obviousness under 35 U.S.C. § 103, all that is required is a reasonable expectation of success. See In re O'Farrell, 7 USPQ2d 1673 (CAFC 1988).

Note also that it is well established in case law that a reference must be considered not only for what it expressly teaches, but also for what it fairly suggests. In re Burkel, 201 USPQ 67 (CCPA 1979). Furthermore, in the determination of obviousness, the state of the art as well as the level of skill of those in the art are important factors to be considered. The teaching of the cited references must be viewed in light of these factors.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill Martin whose telephone number is (703)305-2147.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian R. Stanton, can be reached at (703)308-2081.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-0196.

Papers related to this application may be submitted by facsimile transmission. Papers should be faxed via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center numbers are (703)308-4242 and (703)305-3014.

Jill D. Martin

June 7, 1999

A handwritten signature in black ink, appearing to read "Brian R. Stanton". The signature is fluid and cursive, with a large initial "B" and a stylized "S".

BRIAN R. STANTON, PH.D
PRIMARY EXAMINER